powers in making simple yet significant observations, experiments, and inferences which cannot fail to awaken a lively interest. Certain of these exercises are intended to be performed by the pupil at home and reported on in class. Others involve a demonstration by the teacher before the class. Not the least valuable feature is a series of questions to be used in making a "Comparative Study of the Mammalian Skeleton," as shown in such a collection as that of the American Museum of Natural History. This points the way to a wider educational use of museums in large cities. The book is full of helpful suggestions.

The only passages noticed as calling for amendment are the following: On p. 62 the pupil is directed to "prepare a strong solution of quinine in water by dissolving sulphate of quinine in water by the aid of sulphuric acid." This is hardly explicit enough for home use. Moreover, sulphuric acid in inexperienced hands seems unsafe. In the directions for applying "the nitric acid and ammonia test" (p. 22) the boiling necessary to secure the xantho-proteic reaction is not mentioned.

FREDERICK LEROY SARGENT.

Overton's Physiology.[1] — It is not often that we find so much nonsense compressed into a small volume as a casual glance reveals in this one. A few extracts will show the character of the whole volume. "In moist earth there lives a little animal called the *ameba*." "All animals must have water to drink." "*Oil*, or *fat*, is found in little pockets between the cells." "The fat around the cells is like a cushion, which protects the cells and keeps them warm." Starch grains "dissolve in water and form a paste." "When the plant ripens, the starch changes to sugar." "Most of the fat is oxidized in the lungs." The mind "tells the liver cells to change the digested food to blood." "The mind lives in a few cells and rules all the rest." "From the cells [of bone] there go out fine strings of connective tissue. Lime is mixed among the strings like starch among the fibers of a linen collar." Between the vertebræ "are thick, strong pads of tough flesh or gristle." The scapula "is not joined to any bone." "A muscle is large at one end and is fast to a bone." "The power of a muscle comes from the heat of oxidized food." "Cell, the smallest part of the body which can live when separated from the rest." "The only cells of the body which can move about are the white blood cells. The rest are held in place by strings of

[1] Overton, Frank, A.M., M.D. *Applied Physiology, including the Effects of Alcohol and Narcotics.* New York, American Book Company, 1898.

connective tissue." "The liver cells also change sugar into a kind of starch. This is soon oxidized in the liver, and heat is produced for the use of the body." And so on *ad nauseam*.

Animal Hypnotism.[1] — The first part of Professor Verworn's *Contributions to the Physiology of the Central Nervous System* is taken up with an interesting account of the so-called hypnotism of animals. As early as 1636 Schwenter described the well-known experiment in which a hen is held on a horizontal surface, and a chalk-line drawn from her head over the surface; on releasing her, instead of recovering her normal position, she may remain motionless for some considerable time. Ten years later Kircher described the same experiment, except that he directed that the hen should be bound with a cord and part of the cord stretched in place of the chalk-line. On drawing the chalk-line the cord could be removed, leaving the hen motionless. In 1872 Czermak showed that the cord and chalk-line were superfluous, and that the experiment succeeded perfectly well without them. He likewise called attention to similar phenomena in the crayfish. The next year Preyer published experiments of a like nature on the guinea pig and frog. These were followed by contributions from Heubel and from Danilewsky, both of whom worked chiefly with the frog. As a result of these studies it was found that many animals, chiefly vertebrates, when placed in abnormal positions and held there till their struggles to recover had ceased, would remain motionless in some cases for an hour or more, especially when they were protected against strong sensory stimuli.

Schwenter believed the animals remained still from fright, and this idea was elaborated by Preyer. Kircher thought that the hen, knowing she was bound, believed it useless to resist, and therefore lay still. After the removal of the cord she mistook the chalk-line for the cord, and, believing she was still bound, made no effort at recovery. Czermak, and later Danilewsky, regarded the condition as directly comparable with the hypnotic state of the human subject. Heubel sought for an explanation of the phenomenon in conditions parallel with sleep.

In dealing with this subject Verworn considers three questions: first, what is the pose of the body and the condition of the musculature when the animal is "hypnotized"? secondly, to what extent is

[1] Verworn, Max. *Beiträge zur Physiologie des Centralnervensystems.* Erster Theil. Die sogenannte Hypnose der Thiere. Jena, G. Fischer, 1898. iv + 92 pp., and 18 illustrations in the text.